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Environmental Protection Agency
EPA Docket Center (EPA/DC), Air and Radiation Docket
Mail Code 28221T
1200 Pennsylvania Ave, NW
Washington, DC 20460

Attention:

EPA Docket ID No. EPA–HQ–OAR–2018–0283, NHTSA Docket ID No. NHTSA-2018-0067

Subject: Comments to the Notice of Proposed Rulemaking for the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks

Dear Sir or Madam,

On behalf of Volkswagen Group of America, Inc., ("Volkswagen") I hereby submit written comments regarding the Notice of Proposed Rulemaking (NPRM) for The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks published in the Federal Register on August 24, 2018. This joint NPRM, published by National Highway Traffic Safety Administration (NHTSA) and the Environmental Protection Agency (EPA), seeks comments regarding proposed changes to the Model Year 2021-2026 light-duty vehicle Corporate Average Fuel Economy (CAFE) and greenhouse gas (GHG) standards. These comments are submitted by Volkswagen Group of America, Inc. on behalf of Volkswagen AG, Audi AG, Bentley Motors, Ltd., Porsche AG, Automobili Lamborghini, S.p.a. and Bugatti Automobiles S.A.S. (collectively, "Volkswagen").

Volkswagen supports continuous reductions in vehicle greenhouse gas (GHG) emissions and improvements in fleet fuel economy. Volkswagen continues to develop and bring to market advanced vehicle technologies aimed at achieving environmental and energy improvements while meeting the needs of our diverse customers. Volkswagen appreciates the opportunity to provide these comments on the SAFE NPRM.

Challenges and Opportunities for Revised Standards

Volkswagen is committed firmly to the need to reduce greenhouse gas emissions in order to protect the environment. The transportation sector has an important responsibility and opportunity to lead with technologies that address global environmental threats. The Company supports a forward looking regulatory framework that will provide for continued reductions of greenhouse gas emissions from motor vehicles and improvements in fleet fuel economy. The Company believes that the current single national program for regulation of greenhouse gas emissions and fuel economy is essential to efficient functioning of a marketplace in an industry with long lead times. Volkswagen urges EPA, NHTSA and California to continue their efforts to forge a compromise around one national program.

The possibility of protracted and costly legal disputes in the absence of an agreed approach would bring uncertainty and needless complexity to an already challenging framework.

As discussed further herein, Volkswagen's Roadmap E has launched an aggressive global strategy to transition rapidly to electric drive. In the near term, factors such low fuel prices, higher demand for light trucks, slower than expected adoption of electric vehicles, and slower development of electric charging infrastructure are obstacles to the reduction of greenhouse gas emissions.

Volkswagen can support the existing standards for GHG emissions and fuel economy as long as additional and extended flexibilities are incorporated in the new regulation. In particular, the Company considers the elimination of the upstream emissions burden on electric vehicles to be a prerequisite to a successful program. In addition, continued and expanded electric vehicle multipliers, streamlined off cycle credit provisions, and other measures discussed within these comments will be needed to facilitate compliance. Even with these improved flexibilities, compliance would be difficult, requiring higher than projected EV adoption and/or product curtailment actions that would dampen demand for new vehicles. Volkswagen also could support reduction of the existing GHG and fuel economy targets provided that those reductions are agreed to by the federal government and California as part of one national program.

Volkswagen supports the continuation of a coordinated One National Program that achieves the goals of Federal and State partners

Volkswagen believes that the continuation of an aligned Federal and State One National Program (ONP) can most efficiently achieve improved environmental and energy security outcomes while allowing manufacturers to comply with multiple regulations with a single fleet of vehicles sold Nationwide. Volkswagen believes that the Federal and State authorities can jointly arrive at a Final Rule that will maintain ONP and develop overall standards for model years 2021-2026 that will provide industry with a durable, achievable set of regulations that are in balance with the market. Maintaining ONP will help drive investment into advance vehicle technologies, further expanding affordable choices for cleaner, more efficient cars and trucks. Misaligned standards can detract from achieving policy goals and saddle manufacturers and consumers with additional costs and unnecessary complication.

Volkswagen supports policies aimed at achieving continuous improvements in fuel economy and reductions of greenhouse gases from new automobiles

Supporting environmental and energy security outcomes reflects values embedded within Volkswagens sustainability policies[1]. These policies articulate the importance of pursuing economic, social and ecological objectives simultaneously and with equal energy. It is Volkswagens' aim to create lasting values, offer good working conditions, and conserve resources and the environment. To that end, Volkswagen supports continuous reductions in vehicle fleet average GHG emissions and ongoing improvements in fleet fuel economy. Volkswagen continues to commit extensive development resources to improving conventional vehicle technologies such as advanced gasoline combustion engines. In parallel, Volkswagen is also committing unprecedented investment into a full range of innovative vehicle electrification technologies ranging from mild hybrid systems to full battery electric vehicles built on all new dedicated EV platforms. These technologies will be produced and delivered at scale and into markets worldwide and with the level of quality and utility demanded by our customers.

Volkswagens' "Together-Strategy 2025" is accelerating vehicle electrification across the Group

In Volkswagens' "Together-Strategy 2025" business plan, the Group has launched substantial new investments in technologies, such as vehicle electrification, that can help achieve deep reductions in carbon emissions from our vehicles. Roadmap E is the foundational plan for the electrification of vehicles across Volkswagen's diverse range of brands. Roadmap E launches one of the most comprehensive electrification offensives in the automobile industry aiming to deliver electric vehicles for everyone. Roadmap E includes a broad expansion of electric drive

[1] https://www.volkswagenag.com/en/sustainability.html

technologies, including unique vehicle platforms specifically designed for fully electric vehicles. In addition, Roadmap E outlines direct investment into research of advanced, next generation battery technologies and in establishing centers of excellence within the Group. Finally, Roadmap E involves establishing partnerships across the worldwide supply base that will be necessary to ensure the future production capacity of battery cells needed to meet the demand of our future electrified fleet.

The importance of coordinated policies that support the consumer, build new fueling infrastructure, and promote advanced technology vehicles

Volkswagen continues to believe that the best opportunity for successfully achieving long-term transportation energy and environmental goals is via coordinated policies that simultaneously incentivize technology, build infrastructure, and support consumer adoption. Coordinated policies can help build the confidence needed to achieve an orderly transition to new advanced vehicle technologies within the marketplace.

Fleet average regulations have the opportunity to help provide both the long-term certainty and the inherent support needed to steer investment into more efficient, but often more costly automotive technologies, such as electrified powertrains. Policies such as CAFE and GHG can be developed to provide stringent, but achievable targets over a long time horizon while concurrently helping manufacturers achieve those targets through supporting flexibilities and programmatic mechanisms.

Regulating cars alone will not deliver the environment improvements needed if our customers do not feel supported and confident in choosing to embrace advanced powertrains. Policies that build consumer awareness, provide valuable financial and non-financial consumer incentives, and fund the deployment of new fueling infrastructure are critical to providing consumers the confidence that they will be supported at the point of sale and over the lifetime of ownership. Without coordinated support, evidence suggests that consumers may hesitate to transition to new technologies, or they may find that the higher upfront costs simply remain out of reach financially.

Volkswagen applauds the efforts of individuals involved in transportation policy who are focused on building awareness and increasing the number of supporting policies at the Federal, State and local level. Volkswagen recognizes that these policies have to compete for limited resources and that in many cases the outcome is less than originally desired. Volkswagen stresses the importance of maintaining such policies over the course of the time period being considered within this NPRM. Losing support just when a market is beginning to transition will negatively affect the trajectory of growth.

Volkswagen appreciates the opportunity to provide comments to this NPRM and looks forward to further, collaborative engagement with the agencies. Should you have any questions regarding technical content of these comments, please contact Nick Tamborra at (248) 754-4584.

Sincerely,

Rob Sutschek

Rob Sutschek
Sr. Director

Appendix: Volkswagen Group of America (VWGoA) Comments to the SAFE NPRM

Contents

1. Overview

Volkswagen supports the goals of One National Program and the underlying basis that a manufacturer should be able to achieve concurrent compliance with Federal and State regulations for GHG and fleet average fuel economy with a single fleet of vehicles sold Nationwide. Volkswagen encourages continued discussions between Federal and State authorities aimed at finding an acceptable pathway forward that meets environmental and energy objectives while providing industry with an achievable level of stringency that supports the needs of our customers. Volkswagen offers the following comments in response to specific topics within the NPRM.

The existing standards were informed through extensive analysis and were based on information available at the time. Now with the availability of actual performance and historic, rather than prospective, market data, it has become evident that many of the assumptions that justified the level of stringency in the existing standards have simply not materialize as expected. Predictions about the marketplace, energy prices, consumer response, and technology development, each to a varying degree, manifested differently than anticipated. Data shows that consumers are indeed shifting towards cleaner, more efficient choices, but not at the pace, or as broadly as anticipated. Despite significant investment by manufacturers, the market has been slow to embrace many of the more efficient vehicles that were produced and at the volumes that were planned. The overall program is still advancing towards energy and environmental goals, but not at the rate as predicted.

The NPRM presented today is a roadmap containing options on how to move forward. The agencies have presented a variety of annual target levels and options for updating program flexibilities in a number of alternative scenarios. Volkswagen believes that there are even additional options and possibly new flexibilities that can be considered by the agencies and are presented within the comments. Each of the alternatives within the NPRM maintains directional progress towards improving energy and environmental outcomes, but in a manner that aims to better balance the stringency with market acceptance and overall compliance achievability. Volkswagen appreciates being able to comment on the range of alternatives within the NPRM. Volkswagen remains committed to transitioning our fleet towards new technology vehicles, in a manner that is orderly and in step with market conditions and consumer needs.

The comments presented in this summary are aimed at finding a reasonable pathway forward. One that achieves environmental and energy outcomes, incentivizes technology advancement, secures compliance, and most importantly, supports the customer. Volkswagen is committed to supporting this rulemaking with information to help find the appropriate path forward.

2. Importance of Aligning Regulations and Market Demand

Volkswagen is a full-line manufacturer with brands in the US market that cover a broad spectrum of consumer segments. Volkswagen has committed in Roadmap E to developing and marketing a range of electrified vehicles across our brands on top of continuous investments to improve conventional technologies. Volkswagen has been publicly revealing concepts for electrified vehicles that will initially be focused amongst the Company's premium and performance brands. However, Volkswagen recognizes the importance of extending electrification beyond the higher price segments and achieving electrification for everyone and has also planned for an extensive rollout of vehicles in our mainstream brands. All of these vehicles will incorporate advanced technologies that will deliver exciting performance while simultaneously helping Volkswagen achieve future compliance obligations with GHG and fuel economy.

As further described in 4 below, Volkswagen continues to project that long-term compliance with the existing EPA GHG and NHTSA CAFE augural standards will require a level of technology that may exceed future adoption rates by consumers, especially in mainstream market segments. In 5.1 below, Volkswagen has provided updated cost estimates for many of these technologies. Agency cost data in previous rulemakings, and in this NPRM, have consistently highlighted that advanced powertrain technologies, especially electrification, are anticipated to remain more expensive than combustion vehicles over the course of the time period of this NPRM. Despite these challenges, Volkswagen is pushing forward with an orderly transition to electrification and reducing the GHG emissions and fuel consumption of the Company's fleet.

Volkswagen continues to believe that the Federal and State partners can determine a path forward that advances environmental and energy outcomes while maintain key market aspects such as mainstream affordability. Aligning standards with market demand will help result in a successful set of regulations.

3. **[SECTION CONFIDENTIAL]** Volkswagen Near-Term Compliance through 2018

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4. **[SECTION CONFIDENTIAL]** Forecasted Long-Term Compliance through 2025

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5. **[SECTION CONFIDENTIAL]** Overview of Volkswagen Technology Pathways Through 2025

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6. Comments on GHG and CAFE Standards

As discussed previously, Volkswagen has committed to a broad transition to electrification as reflected in the Company's Roadmap E plan. With the market adoption of this strategy, Volkswagen could support the existing standards for GHG emissions and fuel economy as long as additional and extended flexibilities are incorporated in the new regulation as described in further detail in 7and 8 below. In particular, the Company considers the elimination of the upstream emissions burden on electric vehicles in combination with extended advanced vehicle multipliers as being core changes that will help achieve compliance and support Volkswagen's investment into electrification. Even with these improved flexibilities, compliance would be difficult, requiring higher than projected EV adoption and/or product curtailment actions that would dampen demand for new vehicles.

Volkswagen also could support reduction of the existing GHG and fuel economy annual targets provided that those reductions are agreed to by the federal government and California as part of one national program. Modifying annual target rates could be considered in combination with flexibilities, but Volkswagen would prefer that flexibilities which support electrification are part of a final rule. Furthermore, Volkswagen supports scenarios that maintain air conditioning leakage, efficiency and off-cycle technology credits over the duration of the programs. Several of the alternatives introduce the idea to removing these flexibilities. Volkswagen supports these flexibilities and believes there are opportunities to expand them further.

6.1. [SECTION CONFIDENTIAL] Compensating for CAFE Credit Restrictions that Misalign Compliance

CONTAINS CONFIDENTIAL BUSINESS INFORMATION, DO NOT RELEASE UNDER FOIA

7. EPA GHG Program Flexibilities

The following are various key program flexibilities related to the MY2022-2026 standards that Volkswagen believes will have a significant impact on incentivizing deployment and market adoption of advanced technology vehicles and improve compliance with GHG and CAFE standards.

7.1. Eliminating Upstream Emissions for Electrified Vehicles

Volkswagen supports the fundamental basis that electric operation of PHEV, BEV and FCEVs should permanently be calculated within manufacturer's fleet average GHG performance at 0g CO_2/mi.

EPA should eliminate upstream emissions accounting for electrified vehicles in order to fully support the transition to electrified technologies

Upstream emissions are not emitted by electrified motor vehicles. Battery electric vehicles do not have a tailpipe. Plug-in electric vehicles, while operating in all electric mode, do not emit greenhouse gases from their tailpipe when the combustion engine is not running. Upstream emissions are physically emitted by power generation facilities when consuming feedstock used to produce electricity. Volkswagen supports the premise that upstream emissions of electricity should not be accounted for in a motor vehicle regulation whose scope is to regulate the performance of motor vehicles. Volkswagen does not control or influence emissions from another sector and is opposed to being held accountable for those emissions in a motor vehicle regulation.

Volkswagen acknowledges that consuming feedstock to generate electricity used to propel electric vehicles results in emissions of greenhouse gases. Volkswagen recognizes that the rate of emissions is based in turn on the feedstock and efficiency of the generating facility and the transmission grid. Electricity generation is the US varies considerably by region, however data illustrates that overall the efficiency of generation and the transition to lower GHG intensive feedstocks is contributing to a decline in the greenhouse gas intensity of electricity generation. Shifting to sources such as natural gas has helped achieved significant reductions in GHG emissions from the power sector. In addition, the improving economics for renewable generation is further accelerating reductions in emissions as more zero-emissions sources are being integrated within production grids. Many of these generation shifts are being driven by improved economics, but are also being supported by various regional and State programs that are motivating carbon reduction from power generation. Volkswagen believes that the overall trends in reduced GHG emissions from the power sector is concurrently decreasing any upstream emissions that may be attributable to electric driving. Volkswagen recognizes that earlier proponents of upstream emissions accounting were concerned that by not including upstream emissions the EPA GHG motor vehicle regulation would miss an opportunity for further overall fleet emission reductions. However what is becoming apparent is that by actions taken by the power generation sector and through regulations and programs that include the power generation sector, emissions from electricity production are already falling and that this improvement should help assuage the concerns previously raised by the proponents of upstream accounting.

Including upstream emissions reduces the incentive to deploy electrified vehicles into a manufacturer's fleet. The existing GHG regulation provides a limited volume for electrified vehicles that can be exempt from upstream emissions accounting. EPA initially established this flexibility in recognition of the inherent challenges manufacturers face when deploying electrified vehicles into the marketplace. Volkswagen believes that those underlying challenges remain and that the policy supporting zero upstream accounting continues to be a relevant.

The projected agency costs for full electric and plug-in electric vehicles remains considerably higher than for conventional or even hybrid vehicles. Figure 13 illustrates the impact on projected compliance CO_2 ratings for a vehicle with advanced combustion, hybrid, plug-in hybrid and full electric powertrain technology. It becomes immediately apparent that a PHEV would be rated in a manufacturer's fleet average GHG calculation at a near identical level of performance as a traditional strong HEV. This means that any compliance benefit associated with the higher cost all electric drive hardware and significantly upsized traction battery would be nearly erased. This would not incentivize deployment of this technology.

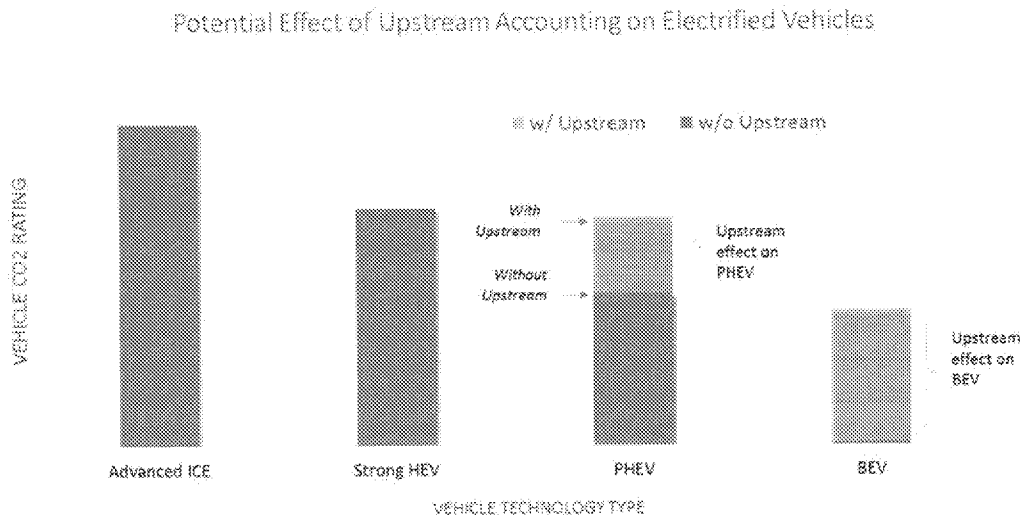

Figure 13 Projected Impact of Upstream Emissions on Electrified Vehicle Compliance Values

7.2. Extending and Enhancing Advanced Technology Vehicle Incentives (Update language)

Within Section X of the NPRM, EPA seeks comment on advanced technology incentives.

EPA Should Extend the Electrified Vehicle Multiplier to Align with Latest Market Projections and maximize the Incentive for Broad Market Adoption

EPA adopted electric vehicle multipliers during the original development of the 2017-2025 standards in order to incentivize deployment of the technology into the marketplace. The timing and schedule for the multipliers were expected to coincide with the early transition of the market towards electrified. The concept being that the multipliers would start and be most effective during the early market deployment and thus help build the momentum needed to transition the broader market towards electrified vehicle adoption. Then as the market achieves broader adoption, the multipliers would phase-down and eventually expire. However, many of the early predictions for electrified vehicle deployments failed to materialize and the "ramp up" now appears to be delayed until past the time that the multipliers expire. While sales volumes of BEVs and PHEVs have had some success in certain regions and market segments, overall market share has failed to accelerate and remains low when broadly compared to internal combustion engine vehicles. Thus, while the underlying basis of the multipliers remains valid, the timing relative to market realities is now out of sync and needs to be reconsidered. Volkswagen predicts that the current multiplier schedule will not deliver the intended market and compliance incentive as originally intended and should be extended and expanded through 2026.

Volkswagen supports extending and expanding the advanced technology multipliers as shown below in Table 3. The underlying basis for this proposal as explained in industry comments in more detail is to align the level of the multiplier with the incremental cost and projected CO_2 reduction associated with electric drive components when compared to the costs of conventional technology. Volkswagen supports this as a fair basis for the proposed multiplier level.

$$Light\ Duty\ BEV\ Incentive\ Multiplier = 1.5\ x\ \frac{\left(\$20{,}791/258.8\ \text{g/mi}\right)}{\left(\$1{,}659/61.3\ \text{g/mi}\right)} = \mathbf{4.5}$$

Table 3 Alliance proposed advanced technology multiplier

ATV Type	MY 2021-MY2026
Alliance Proposed BEV Multiplier	4.5
Alliance Proposed PHEV Multiplier	4.8

7.3. Enhancing Off-Cycle Credits

Credits for off-cycle and air conditioning technologies play in important role for compliance with GHG and CAFE regulations. Volkswagen continues to believe that credits for off-cycle technologies is an important program flexibility aimed at both incentivizing and accounting for emission reductions delivered by these technologies. Volkswagen supports maintaining and even expanding the applicability and scope for the off-cycle program within the EPA GHG regulation.

7.3.1. Streamlining Applications

Manufacturers need certainty in future compliance planning, therefore Volkswagen asks to simplify the application for listed credits and testing to achieve a transparent, fast and reliable instrument for compliance. Alliance comments have outlined points with regards to EPA's current process to approve additional off-cycle credit technologies that have shown benefits in the real world. Volkswagen believes significant volumes of off-cycle credits will be essential for the industry in order to comply with the GHG and CAFE standards through 2025.

Volkswagen Supports Streamlining of the Off-Cycle and Mobile Air Conditioning Credit Approval Processes in Order to Incentivize Further Deployment of Advanced Technologies

The first opportunity would be to allow manufacturers to leverage off-cycle technologies previously approved under the alternative application process. The current alternative method process is time and resource intensive, but necessary for new technologies that have yet to establish a technical basis for emission reduction potential. Volkswagen supports allowing manufactures to claim credits for technologies already approved for use from other manufacturers without having to file a completely new and separate application. Portions of previously approved applications could be leveraged if the underlying technology is used in a similar manner as for the original applicant. Alternatively, the technology could be added to the menu list, thus shortening the application preparation time and minimizing EPA's review and approval from subsequent manufacturers using the same technology. There could be an opportunity to save resources by allowing manufacturers to leverage previously approved applications and avoid duplicative testing and engineering analysis.

Second, Volkswagen notes the Alliance proposal to shorten the time it takes the agencies to evaluate and make the final decision on manufacturers' alternative methodology applications. Approval time for some applications has in some cases extended beyond the guidelines as described in 40 CFR 86.1869-12 (d). Volkswagen supports the Alliance recommendation that off-cycle alternative methodology applications be approved after 90 days if the agency has not reviewed the application for completeness or published a complete application in the Federal Register. Again, this will help ensure certainty in timely responses from the agencies and allow for manufacturers to add technologies to the market at a faster rate.

7.3.2. Eliminate the overall cap on predefined off-cycle technologies

Volkswagen supports removal of the 10g/mile fleet cap currently in place for pre-approved menu credit items. Alternatively increasing the cap to 15 g/ mile would be helpful. Manufacturers continue to invest in new off-cycle

technologies and implement them across their entire fleet. The use of off-cycle technologies are already exceeding the agencies' expectations. As the program continues, the expectation is that manufacturers will continue to introduce more off-cycle technologies and run the risk of hitting the fleet average cap. The concern is that this will stifle additional investment into more off-cycle technologies because manufacturers would have to switch to the more complicated and time consumer application process.

7.3.3. Expand pre-defined off-cycle technology list

Volkswagen supports expanding the pre-defined menu list of off-cycle technologies with new technologies and updated credit values for existing technologies. Since the menu was created in the 2012 rulemaking, several new technologies have been developed and are being implemented into the fleet. Adding these technologies would remove the need for duplicative applications and would help drive further deployment of the technologies. Technologies such as advanced air compressors and efficient alternators should be included in the pre-defined menu list. These technologies have already been claimed by a number of manufacturers through the program.

Table 4 Alliance Proposed Off-Cycle Table

Technology	Passenger Car Credit (g CO_2/mi)	Light-Duty Truck Credit (g CO_2/mi)
High-efficiency exterior lights	Up to 1.0 based on system	
Waste heat recovery per 100W (scalable)	0.7	
Electric load reduction (real-world)	0.32 per W	
Solar roof panels for batter charging with or without active cabin	2.5 (with active cabin) 3.3 (without active cabin)	
Active aero per 1% Cd improvement (scalable)	0.1936	0.3316
Engine idle stop/start without or with heater circulation system	1.5 (without) 2.5 (with)	2.9 (without) 4.4 (with)
Active transmission warm-up (separate circuit, improves warm-)	1.5	3.2
Active engine warm-up (separate circuit, improves warm-up and)	1.5	3.2
Thermal bypass valve warm-up	0.5	1.0
Axle oil heater	1.5	3.2
Exhaust heat recirculation system (multiplier based on any combinations of active engine, transmission, or axle heating warm-up)	20% multiplier	
Cooled exhaust gas recirculation (multiplier based on any combinations of active engine, transmission, or axle heating warm-up)	10% multiplier	
Powertrain bay heat retention and engine encapsulation	1.5 (powertrain bay heat retention) 3.0 (engine encapsulation)	
High-efficiency alternator	(VDA-67) * 0.16	
PWM-controlled blower	1.3	1.8
Brushless blower motors	Scalable based on motor efficiency	
Brushless engine fan motor	0.5	1.0

Source: *Alliance of Automobile Manufacturers' Comments for the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021--2026 Passenger Cars and Light Trucks. Chapter 5.5.1. Expand the Off-Cycle Table*

Technologies to be included in the update off-cycle credit table:

High-Efficiency Alternators

Volkswagen believes high efficiency alternators can be implemented into a range of vehicles resulting in significant alternator load reduction throughout cycle, significant reduction in alternator losses (~21%) while maintaining same output, and improved alternator efficiency equates to reduction in engine load (~1.2%) which with a load reduction results in CO_2 emissions improvement. Volkswagen supports the Alliance recommendation to add these high-efficiency alternators and the corresponding formulas and calculations to the off-cycle table. This would include the Agencies standardizing the calculations to claim credits for these technologies. These recommendations would allow for the Agencies to streamline the process and to ensuring manufactures they can claim credit for these alternators.

Advanced Air Conditioning Compressors

For Volkswagen, several Group vehicles will be using the same compressor technology as compared to similar compressors with equal benefits that have been approved previously by EPA for other manufacturers. Bench testing that was done by a supplier was independent of any OEMs. Therefore, Volkswagen supports the Alliance's argument recommends that OEMs should not be required to redo previous supplier testing. Volkswagen recommends allowing an engineering analysis in lieu of whole vehicle AC 17 tests with the Alliance. Similar to adding the alternators to the off-cycle table, Volkswagen also supports the Alliance recommendation to add more advanced compressors and the corresponding formulas and calculations to the off-cycle table.

7.3.4. Eliminate the Thermal Control Technology off-cycle credit cap

Volkswagen supports removal of the Thermal Control Technology credit cap. Alternatively, the caps could be made less constraining if they were administered as fleet average credit caps, rather than per-vehicle caps. This may cause some constraint for passenger cars of the off-cycle credit cap, the credit cap constraints are much more severe for trucks, and since the truck credits in general are higher.

Adding thermal management technologies at the maximum cap for that category (4.3) brings the truck credit total to 9.7 grams – just short of the 10.0-gram cap. These hypothetical scenarios show that the off-cycle credit caps could easily become binding for a manufacturer that tried to implement a comprehensive program to apply these technologies across its fleet and earn the associated credits, especially if manufacturers are introducing a larger share of trucks in its fleet.

7.3.5. Move Thermal Control Technologies to the Air Conditioning Efficiency Table

Volkswagen supports the Alliance recommendation based on the Agencies' request for comment to restructure the off-cycle credit program by removing the solar-thermal technologies such as glass, paint, cabin ventilation, and ventilated seats and combining them with the air conditioning efficiency technologies. The off-cycle credits discussed in our comments as well as the Alliance SAFE NPRM comments pertain to efficiency improvements unrelated to the air conditioning and solar-thermal technologies. The updated menus should reflect these differences.

7.3.6. Encouraging Supplier Engagement in Developing Off-Cycle Technologies

Within Section X of the NPRM, EPA seeks comment on suppliers applying for off-cycle technologies. Volkswagen supports allowing suppliers to lead the application process for a new off-cycle or air conditioning efficiency technology credits. Applications from a supplier should be treated identically to the methods used by vehicle manufacturers to secure these new credits. Volkswagen recognizes that agencies intend to review technical analysis

for new off-cycle applications and that under this proposal, suppliers will be responsible for engaging in agency discussions and being the source for supporting material.

7.4. Continuing the Air Conditioning Credits

Air conditioning credits have been valuable to manufacturers and are projected to be an important part of overall compliance planning. Volkswagen supports Alliance and industry comments related to air conditioning efficiency credits.

Volkswagen Supports improvements in the A/C Credit program and the addition of new technologies to the Menu

Several significant new air conditioner efficiency and thermal control technologies have been developed and demonstrated in the eleven years since the publication of the 2007 IMAC report, which as stated in previous industry comments was the basis for the current list of pre-approved MAC credits and the associated caps. Volkswagen supports industry's justifications for updating the MAC indirect credit pre-approved list to include these new technologies. Adding these technologies would accelerate their implementation and improve the cost effectiveness of the regulation. Also, a more streamlined process would not only allow manufacturers to meet the agencies' expectation of off-cycle & MAC usage across the fleet, but exceed future projections as more technologies are added into new vehicles. In summary, Volkswagen continues to support industry recommendations to the regulatory provisions, and request in general that these mechanisms be retained. Expand hybrid pick-up credit to all hybrid cars and trucks

During the final rulemaking EPA adopted a series of credits for Full-Size Pick-up Trucks in order to incentivize deployment of fuel saving technology into the truck segment. Full size pick-up trucks claiming HEV credit must be designated as either Mild Hybrid Electric Vehicle or Strong Hybrid Electric Vehicle. Volkswagen and the Alliance supports flexibilities applied to mild and strong hybrid passenger cars at half the level of light duty trucks to encourage their widespread acceptance. Volkswagen also supports the promotion hybrid technology throughout the entire light-duty truck segment as opposed to just being limited to pick-up trucks. Smaller footprint light-duty trucks fall on the lower part of the light truck footprint standards curve, which has a higher rate of improvement (in stringency) than larger trucks which makes them comparable to passenger cars with similar technology offerings and packages. As illustrated in 5.1 above, costs for hybrid drive technologies even on passenger cars are projected to remain high and that market demand for these vehicles will continue to be challenged. Providing compliance support for these vehicles will help overcome other challenges and encourage further deployment of this fuel saving technology. Therefore Volkswagen supports the Alliance in extending these flexibilities to passenger car hybrid vehicles

7.5. Extending EPA GHG Credit-Carry Forward

Within Section X of the NPRM, EPA seeks comment on extending the carry forward lifetime allowance for GHG credits earned by manufacturers.

Volkswagen supports extended GHG credit lifetimes

EPA has proposed three options for extending credits. First, credits earned from MY2010 and later would have their credit life extended through MY2025. Second, the lifetime for all credits would be extended to a longer fixed period greater than the current five year lifetime. Third, GHG credits have an indefinite lifetime. EPA supports these options by stating that "longer credit life would provide manufacturers with additional flexibility…potentially reducing costs[4]". Volkswagen agrees with this basis and supports extending GHG credit lifetimes.

It is important to level set the basis for this support by reiterating that credits are earned when manufacturers achieve lower CO_2 fleet average emissions than otherwise required by regulation in any given model year. This typically

[4] 83 FR 43464

results from actions taken by a manufacturer to deploy specific models or efficient technology often at a higher cost. These technologies reduce the amount of GHG emissions that will be released into the atmosphere over the lifetime of the vehicle, which could be over several decades. The resulting credit earned by a manufacturer for having made the product or technology investment that resulted in the reduced emissions shouldn't be limited to five years. As EPA has clearly recognized, each credit provides the manufacturer with compliance planning flexibility, which as evident from recent model year performance, can prove valuable for long-term planning.

Volkswagen believes that any of the three options briefly discussed in the NPRM have the opportunity to improve flexibility and achieve overall cost savings by extending the lifetime of credits earned.

With regards to the first option, extending MY2010 and later credits through to MY2025, Volkswagen wants to clarify that in practice this would apply to MY2010-2020 credits and that credits earned for MY2021 and later would then revert to the existing five year lifetime. Volkswagen wants to avoid inadvertently shortening the lifetime of MY2021-2024 credits if these would expire in MY2025 under this proposal. This nuance was not clear in the preamble discussion of the NPRM. Further, Volkswagen supports that this modification would overwrite the existing MY2010-2015 carry-forward to MY2021 in the current regulation, i.e. if adopted, MY2010 credits would remain valid through MY2025. Volkswagen anticipates that the timing of a Final Rule could result in the change occurring prior to MY2021 and that if overwritten the issue could be moot for early credits. However, should the Final Rule be delayed, or otherwise litigated, Volkswagen wants to ensure that any of the early credits that otherwise would have expired in MY2021 can be made eligible fully through MY2025. This clarity will help with any planning that could be incorporating earned or purchased MY2010 credits just in case the timing of the rule slips to the point where these early credits could begin to expire.

With regards to the second option of simply extending the general lifetime of credits to something longer than 5 years, Volkswagen would propose an eleven year lifetime. With this approach the MY2010 credits would maintain the MY2021 applicability already in place via the existing MY2010-2015 carry-forward provision. This unique provision could then be removed in order to simplify the regulatory text. Alternatively, Volkswagen proposes a ten year lifetime for credits. Ten years generally aligns with the time horizon used by Volkswagen for strategic market and compliance production planning for the US. This level of planning contains enough detail to estimate future regulatory compliance projections and being able to fully integrate credits earned in a current model year would provide planners with maximum flexibility in optimizing the use of earned credits. This is consistent with the basis EPA is using to propose longer lifetimes and will help Volkswagen manage overall compliance cost.

The third option of infinite credit lifetime would provide the cleanest approach to credit accounting. Not having to track individual model years associated with credits would significantly simplify compliance accounting and ease administrative burden. Volkswagen believes in practice credits would likely be used within the ten year window as described above, but again reducing the administrative burden would be helpful.

In general, Volkswagen would prefer to adopt the third option if for nothing else than to reduce the administrative reporting and tracking required for credits with an expiration. Volkswagen feels it is unlikely that credits would remain unused for a period longer that the timeline of compliance planning as discussed in the second option. Therefore, either the first or second option would achieve the flexibility needed. Finally, Volkswagen proposes that should EPA adopt any of the options above, the extended life provisions would be equally applicable for all credits regardless of whether they have been retained by the original generating manufacturer or subsequently traded or transferred. This equal treatment is consistent with existing rules for credit trades. Volkswagen sees no programmatic benefits to applying different lifetimes to traded or transferred credits.

8. NHTSA CAFE Program Flexibilities

The following are various key program flexibilities related to the MY2021-2026 standards that Volkswagen believes will have a significant impact on incentivizing deployment and market adoption of advanced technology vehicles and improve compliance with GHG and CAFE standards.

8.1. Advanced Technology Vehicle Multipliers in CAFE

Volkswagen supports extending the EPA GHG advanced technology vehicle multiplier into the CAFE regulation via an additional fuel consumption improvement value (FCIV) that would modify a manufacturers CAFE fleet average. Volkswagen believes that including multipliers for electric drive vehicles will considerably address the CAFE compliance challenges noted in 4.2 above. Volkswagen has noted that while the existing calculation for PHEVs and EVs in the CAFE regulation does provide compliance benefit for these vehicles, the level of support is not as impactful as in the GHG regulation. Including multipliers in both rules will help align the programs and support the transition to electrification.

8.2. Expand CAFE Fuel Consumption Improvement Values for hybrid trucks to all hybrid vehicles

Volkswagen supports expansion of the hybrid vehicle FCIV to include all vehicles, not just full size pick-up trucks. As noted in the GHG flexibilities section, Volkswagen agrees that full size pick-ups will experience additional challenges at implementing hybrid technology due to utility requirements for those vehicles. However as illustrated in 5.1 above, costs for hybrid drive technologies even on passenger cars are projected to remain high and that market demand for these vehicles will continue to be challenged. Providing compliance support for these vehicles will help overcome other challenges and encourage further deployment of this fuel saving technology.

8.3. Maintaining CAFE Credit Trading

Within Section X of the NPRM, NHTSA seeks comment on whether to eliminate CAFE credit trading from the CAFE regulation. Volkswagen does not support eliminating credit trading. Credit trading provides a compliance flexibility for manufacturers regulated under CAFE. For example, credits can be used as a mechanism to help achieve a shortfall in compliance within a given model year in cases where sales of high fuel efficiency vehicles may not have materialized as originally planned. This can occur in cases where fuel prices are low, or where consumer reject certain technologies due to higher upfront costs. Other cases could include delays in the introduction of models unforeseen development issues or manufacturing problems. Compliance credits also can provide manufacturers with the flexibility in developing compliance plans as credits can fill in gaps that could occur if planner chose to alter vehicle deployment timing or availability.

Trading of credits is commonly allowed in many current emissions regulations in the US. We see no evidence of market failures or complications that have arisen following the introduction of credit trading for CAFE. Volkswagen understands that the discussion within the NPRM appears to suggest that appropriately scoped stringency ("max feasible") would not require the use of many flexibilities, including credit trading. When examining standards over a time period such as 2021-2026, thinking about the role of flexibilities in relation to max feasible standards over the whole time period might not account for the year-by-year issues that can arise in which a flexibility such as credit trading can help smooth out irregularities that can occur. Credit carry-back and carry-forward also helps with year-by-year compliance, but in some cases those mechanisms may already be included in compliance planning. Credit trading is one additional tool that can help a manufacturer achieve compliance within individual years and over the course of a programs timeframe.

9. Additional Program Flexibilities for NHTSA CAFE and EPA GHG

Volkswagen provides the following comments to support the inclusion of two additional programmatic flexibilities. Volkswagen believes that these fit generally within the scope of the NPRM's review of program flexibilities and can be considered in this rulemaking.

9.1. Specialty Vehicle Low Mileage (SVLM) for CAFE and GHG

Manufacturers such as Volkswagen produce several specialty vehicles which are often built at very low volumes and target market segments with lower expected annual use when compared with more typical mainstream cars. Specialty vehicles typically have extremely low production volume limited by the unique nature of technology or assembly with manufacturing processes that often retain hand-built processes. Specialty vehicles are typically purchased by owners who use the vehicles infrequently for driving experiences such as weekend tours or track events. These vehicles in many cases can be quite expensive and feature technology that requires more frequent maintenance and upkeep which also contributes to limited daily use.

Given this, specialty vehicles over the course of year may not ever approach the vehicle miles traveled of typical vehicles. In many cases the specialty vehicle will only ever approach a fraction of the estimated annual vehicle miles traveled (VMT) when compared to more typical vehicles reflected in the National Household Transportation Survey (NHTS)[5] or in NHTSA's Vehicle Survivability and Travel Mileage Schedules. Specialty vehicles may rarely if ever be used for many of the trip types with the NHTS database such as regular commuting or driving children to school. Often times the limited utility of such vehicles (i.e. limited seating, cargo, etc.) may preclude these cars from being practical for everyday trips such as these. In addition, many of the purchasers of specialty vehicles buy these cars as collector items and are prone to limiting the mileage in order to preserve the value of the car.

Rarely if ever will many specialty vehicles approach the average lifetime vehicle miles traveled (VMT) embedded within the CAFE and GHG regulation. Recall that as regulated under CAFE and GHG, each vehicle is assumed to travel a Vehicle Lifetime Mileage (VLM) of over 195k miles for passenger cars and over 225k miles for light trucks. It is not infrequent for many specialty performance vehicles to have less than 10-20% of this lifetime mileage even after several decades have passed since being sold as new. Even less mileage will accumulate on specialty vehicles that are heralded as immediate collector items. As a result, while a specialty vehicle may have high per mile emissions or fuel consumption, the actual emissions and fuel consumption will be very low since the vehicles are driven at such low mileage.

Volkswagen proposes that the EPA GHG and NHTSA CAFE regulations include a Specialty Vehicle Low Mileage (SVLM) flexibility for vehicles that can demonstrate limited predicted driving use. The basis of this flexibility reflects the fact that the limited use of a SVLM will by nature result in very low emissions and actual fuel usage over the lifetime of the car. A vehicle such as a SVLM will likely never emit GHG or consume fuel to the level predicted within the regulation for that car. In many cases, even with high levels of emissions or fuel consumption, SVLMs will never emit as much CO_2 or consume as much fuel as even the cleanest hybrid vehicle that is used as a daily commuter.

This proposal seeks to achieve equitable treatment for all manufacturers who produce low volumes of SVLMs that may compete directly with specialty vehicles produced by Small Volume Manufacturers (SVM) who are currently provided unique treatment within the existing regulations. SVMs are generally allowed to petition EPA and NHTSA for performance targets that reflect the unique conditions and possible limitations for each SVM. Volkswagen is not contesting this provision and supports the treatment for SVMs who may indeed have limited access to development resources or access to technology. However, Volkswagen does recognize that in the marketplace many of these SVMs produce vehicles which directly compete with the specialty models produced by Volkswagen.

[5] https://nhts.ornl.gov/

This proposal does not seek to extend or otherwise modify the SVM treatment within the regulation. Volkswagen rather proposes that each manufacturer be allotted a very limited annual production volume in which manufacturers could place SVLM model types. Within this limited product volume, each SVLM will retain their footprint derived performance target (per model type), but will utilize a modified VLM for determining any credits or debits associated with the performance of the SVLM within the manufacturers fleet. The modified VLM would replace the standard 195,264 miles for passenger automobiles and 225,865 miles for light trucks.

A modified VLM could be determined based on application of the manufacturer to EPA and NHTSA prior to the start of the model year using historic statistical data for specialty vehicles with similar market and customer use profiles. This historic data could be used to establish a reasonable estimate of use for the new SVLM and to determine a conservative estimate of LVM. The modified LVM would then replace the standard LVM for each SVLM model type in all final year reporting where credits or debits are calculated for that vehicles (i.e. footprint performance, A/C credits, off-cycle credits, etc.) Volkswagen proposes that mileage over 12 years of life be the basis for the application since the full useful life requirement for CO_2 is 12 years.

The data in Figure 14 illustrates an example of the extremely low in-use mileage for models produced by one of the Volkswagen Groups specialty brands, Lamborghini. The graph shows the average odometer reading on used Lamborghinis for sale in the US market up to twelve years of age. This sample consists of over 1000 vehicles and illustrates that actual mileage for these specialty vehicles is extremely limited. At twelve years of age, the average mileage is only approaching 18,000 miles. This is less than 10% of the regulated VLM used within the GHG and CAFE regulation. In addition, the data illustrates declining additional mileage accumulation per year of age. This means that even beyond the proposed twelve year window (consistent with full useful life for CO_2), these vehicles are not expected to accumulate significantly more mileage. Many examples of Lamborghinis from1970s, or 1980s, can be found with exceptionally low mileage.

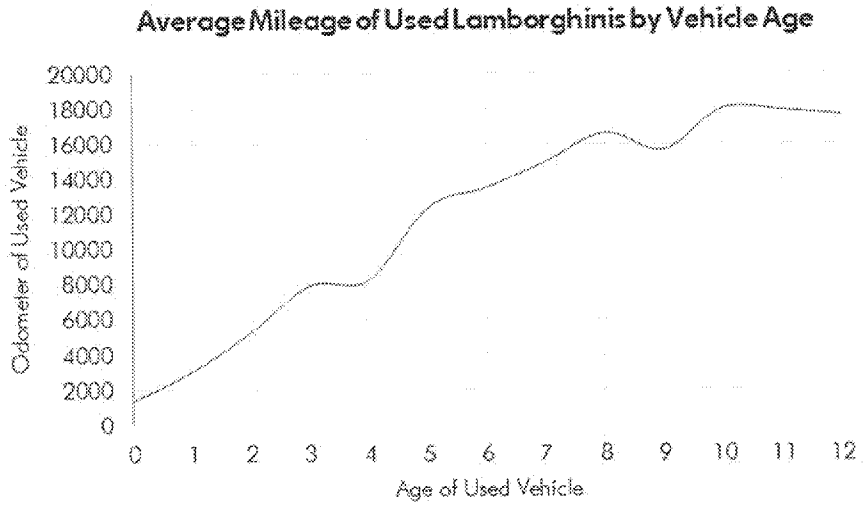

Figure 14 Average mileage for US market used Lamborghini Performance Cars (1000+ vehicle sample)

A second analysis conducted by Volkswagen examined the average mileage accumulated on Bentley specialty vehicles being returned at end of lease. This analysis extrapolated the average monthly or annual mileage accumulated on these vehicle over the term of the lease. The data indicates that for several of the Bentley specialty models, the projected twelve year extrapolated mileage would only approach 65,000 miles on average. Several other models that did show higher average mileage are only expected to approach 95,000 miles at twelve years of age. At these mileages, the Bentley models would only have 30-50% of the VLM used in the GHG and CAFE

regulation. Volkswagen further believes that the linear extrapolation used in this analysis is very conservative since use trends indicate that annual mileage tends to decline with vehicle age.

Table 5 Extrapolated 12-year mileage calculated from off-lease vehicle returns

Bentley Model	Extrapolated 12 Year Mileage Projection	% of Regulated VLM
Bentley 2-Dr Sport Coupe	65,000 miles	33%
Bentley 4-Dr Large Sedan	68,500 miles	35%
Bentley 4-Dr Mid Sedan	98,000 miles	50%

Both of these brands compete directly in the marketplace with models produced by SVMs. Volkswagen reiterates that this proposal is not advocating against the special consideration provided to SVMs rather that the proposal is properly accounting for the very low lifetime mileage of these vehicles when compared against the regulated VLM.

Volkswagen proposes that each manufacturer be allocated an annual production volume of up to 5000 vehicles per year which can be designated as SVLM and apply for an alternative lifetime mileage applicable to GHG and CAFE calculations. This volume is consistent with the volume under EPA GHG regulation for small volume manufacturers and therefore creates reasonable equitable treatment while also limiting the overall applicability of the SVLM flexibility.

Finally, Volkswagen wants to state that including the proposed SVLM flexibility is predicted to have no measurable impact on the environmental and energy outcome of the regulation. As stated above, these specialty vehicles are by far being driven less frequently than the regulation current calculates. The SVLM proposal simply attempts to align the limited actual in use of the vehicle with how the cars are being measured in the regulation for lifetime ton emission of GHG and lifetime fuel consumption. This alignment helps ensure more equitable treatment of these vehicles within the overall fleet of a manufacturer.

9.2. CO_2 In-Use Requirements

Current in-use regulations outlined in 86.1845-04 provide flexibility in determining the applicable number of test vehicles per test group. Each large volume manufacturer is provided the flexibility to employ small volume sampling allowances for a limited number of total annual production units. Volkswagen is proposing to modify 86.1845 to provide a separate, additional small volume sampling allowance allocation of annual production volume for a manufacturers plug-in hybrid vehicles. This additional allowance would only be applicable through the 2025 model year and would only be applicable to CO_2 testing requirements under the in-use regulations.

The basis for this flexibility is rooted in the continuing evolution and development of traction drive battery cell chemistries and battery management systems. This ongoing development is aimed at continuously improving such features as energy density, power, cost, and durability. As such the engineering processes for understanding and quantifying long-term performance are still developing and subject to reevaluation as new chemistries are examined. Manufacturers such as Volkswagen have allocated significant capital in battery testing to ensure that performance is maintained for consumers and are also providing longer term battery warranty provisions.

Volkswagen believes that the targeted flexibility will provide additional time to continue evaluating chemistries and reduce administrative testing burdens for a very limited production allocation per manufacturer. This provision will further support plug-in hybrid technology development and deployment.

86.1845-04 table S04-07 footnote 2 can be modified to read as follows:

[2] Total annual production of groups eligible for testing under small volume sampling plan is capped at a maximum of 14,999 vehicle 49 or 50 state annual sales, or a maximum of 4,500 vehicle California only sales per model year, per large volume manufacturer. *Through model year 2025, a separate total annual production of plug-in hybrid electric vehicle groups shall be eligible for testing under small volume sampling plan as described above. This allocation shall only be applicable to exhaust CO_2 emission standards under this subpart*

10. Streamlining CAFE Reporting

Volkswagen provides the following comments to the NPRM regarding compliance and enforcement

10.1. Efficient Standardized CAFE Report Templates

In the NPRM, NHTSA has proposed to adopt by regulation a new standardized CAFE template for pre- and mid-model year reporting and for supplemental reporting. NHTSA outlines several issues with current industry reporting practices and notes that the goal of implementing a standardized template is to reduce errors, improve data quality and consistency, enable input into CAFE databases, and simplify reporting for manufacturers. Further, NHTSA states that the incorporation of flexibilities into the CAFE program, i.e. off-cycle and A/C credits in model year 2017, increases the complexity of the data and further supports the need for standardized reporting.

In general, Volkswagen supports these goals and agrees that standardized templates can provide an opportunity for improved reporting and increased data quality. Volkswagen further agrees that the projected increase in the use of compliance flexibilities in the CAFE program may add to the overall complexity of reporting as similarly experienced when these flexibilities were incorporated into EPAs' GHG regulation. Volkswagen appreciates the extensive effort that appears to have gone into creating the proposed template that was released via the CAFE Public Information Center in support of this NPRM.

Volkswagen has reviewed the template with the goal of ensuring that the information being requested in this template is efficient with regards to the scope of CAFE and is consistent with reporting already being provided to EPA.

Volkswagen has reviewed the requested fields to understand if the extent of information being requested is efficient for estimating CAFE projections without imposing undue reporting burden. With regards to the scope of data fields included within the proposed template, it is Volkswagens view that a template should request information necessary

to provide the agency with a reasonable projection of CAFE compliance without overburdening the pre- and mid-model year reporting process with extraneous information. As required by 49 USC 32907 and codified in 49CFR537, manufacturers are required to submit reports to the Secretary of Transportation both before and during a model year in order to project compliance with fuel economy standards. Volkswagen believes that it is reasonable for the scope of information required to be submitted to be focused on information needed to calculate projected compliance and to provide necessary information on other relevant topics such as vehicle classification. This focused scope would meet the need to project estimated compliance without requiring excessive input.

The proposed reporting template is populated with many fields that do not immediately appear relevant to projecting CAFE performance or align with the requirements in 537.7. There are some fields that are relevant to other emissions regulations, such "Auxiliary Emission Control Device", for which it is not clear how this applies to CAFE. In addition, there are some fields that no longer seem relevant in the space of automotive technology such as "Distributor Calibration". Volkswagen would again appreciate the opportunity to review with agency staff via in-person workshops or other means to examine and narrow the scope of information within the template to achieve a reasonable scope of information that meets the needs of pre- and mid-model year reporting.

Volkswagen wants to ensure that any data being provided within the NHTSA template is consistent with data being supplied directly to EPA and if possible to achieve both agencies reporting obligations with single sources of information. The main goal is to ensure that data is consistent and that duplicative entry of information is avoided. Entering data into separate templates creates risk that errors are inadvertently introduced.

Given this, Volkswagen does not support at this time including the template as proposed within the Final Rule. Rather, Volkswagen supports further industry engagement with agency reporting staff to discuss an efficient list of data fields that can meet the projection goals and to ensure that processes required to populate those data fields are aligned with existing data reporting processes across both agencies in order to minimize duplication and potential for error. Volkswagen appreciates the effort of agency staff in assembling this template and looks forward to future engagement.

10.2. Protecting Business Privacy in CAFE Credit Transactions

As noted in 8.3 above, Volkswagen supports continuing to include credit trading as a compliance flexibility in the CAFE program. Volkswagen has previously engaged in, and continues to explore, credit transactions with other manufacturers as part of the company's evolving compliance plan.

Credit trades are business-to-business transactions and can contain both financial and non-financial compensation between the buyer and seller. Volkswagen views these transactions as being similar in nature to other competitive purchase agreements and include features such as non-disclosure terms and strict confidentiality with regards to costs and compensation. Volkswagen must compete with other regulated manufacturers for access to valuable CAFE credits in any given model year, just as Volkswagen competes with other manufacturers for access to fuel saving technology. To that end, Volkswagen employs confidentiality during negotiations and transactions in order to protect the sensitive business practices of both Volkswagen and the seller. Revealing confidential purchase terms could result in a competitive disadvantage for both. Just as Volkswagen does not disclose contract pricing for fuel saving technologies from our suppliers, such as for turbochargers or battery packs, Volkswagen does not disclose, or intend to disclose, purchase prices for CAFE credits.

It appears from language within Chapter X of the NPRM, that NHTSA has been approached by "entities wishing to trade credits[6]" and that these entities have cited a lack of transparency in the compensation terms of transactions as inhibiting the determination of credit values. It appears that having access to this financial information would help inform a decision by these entities to possibly buy or sell credits. In response, NHTSA is seeking comment on whether entities that have engaged in credit transactions should be required to provide unfettered access to confidential financial, or non-financial, compensation terms embedded within confidential credit transaction

[6] 83 FR 43449

contracts. Put more simply, should businesses be required to disclose otherwise confidential prices for goods bought and sold in order to enable new entrants into a marketplace?

Volkswagen does not support disclosure of confidential financial compensation terms for credit transactions. Volkswagen believes this is inconsistent with standard purchasing/selling practices and could result in potentially uncompetitive outcomes in the credit market. Compliance plans, which may or may not include the use of purchased or earned credits, are not publically disclosed. NHTSA and other agencies clearly understand that compliance plans are protected Confidential Business Information (CBI). Just as NHTSA does not require manufacturers to post transaction prices for turbochargers, 8-speed transmissions, or battery packs, Volkswagen sees no reason to reveal purchase prices for credits. A manufacturer who integrates compliance flexibilities, such as credits, within an overall compliance plan should not be required to reveal the financial data used to inform that internal planning.

The NPRM is not clear if these other entities seeking access to the financial data are other vehicle manufacturers who would also be regulated by CAFE. If these entities are other manufacturers, then revealing financial terms would appear to create a conflict as these manufacturers could then use the financial information as part of their planning or influence negotiations that they may enter into later with the other manufacturers who were forced to divulge credit terms. Manufacturers compete in the marketplace and access to costs paid by other competitors, either for credits or turbochargers, would give an advantage.

If these entities are not manufacturers, the current regulation already provides them will full access to buy and then later sell or retire credits. These entities could gain access to pricing information by engaging in contract negotiations with other entities that have credits to sell. Volkswagen does not feel this is an inequitable treatment in the marketplace as this outreach and negotiation process is that same process Volkswagen, or any other manufacturer would use when considering credit purchases or sales. Another option is for these entities to manufacture light-duty motor vehicles that would then be regulated by CAFE and could then earn credits. By earning credits through over compliance, these entities could then market the credits just like every other manufacturer who chooses to design, develop and market a highly fuel efficient fleet of cars and trucks.

NHTSA already publishes credit movements each model year. This information already provides some market data to entities who may wish to engage in buying and selling credits in the market. NHTSA has never required, or expressed any interest in requiring, manufacturers to disclose sensitive and confidential financial terms behind these transactions. Other agencies in the US involved in mobile source regulation with programs that include credit trading do not require credit pricing to be revealed.

In summary, to reiterate, Volkswagen does not support required public disclosure of sensitive and confidential financial data associated with CAFE credits.

11. The Importance of High Octane Fuels

Volkswagen provides the following comments to the NPRM regarding high octane fuels

EPA sought comment on the potential for higher octane blends in the US market and their effect on fuel economy, specifically seeking comment on the following topics:

1) How increasing fuel octane levels would play a role in product offerings and engine technologies.
2) Are there potential improvements to fuel economy and CO_2 reductions from higher octane fuels?
3) What is an ideal octane level for mass-market consumption balanced against cost and potential benefits?
4) What are the negatives associated with increasing the available octane levels and, potentially, eliminating today's lower octane fuel blends?

Volkswagen believes that there are many factors that go into the determination of a new vehicle's functional objectives. Powertrain (engine size, combustion strategy, engine hardware) and fuel availability are just two. Certainly, it is well reported that a higher octane fuel can enable higher compression ratios, innovative combustion strategies and further downsizing and down-speeding. These strategies can and will have a direct effect on improving fuel economy, as long as the new fuel comes swiftly and includes a removal of sub-high octane fuels from the marketplace. Volkswagen processes strive to ensure acceptable vehicle operation if owners fuel their vehicle with (currently) sub 87 AKI fuel. The gains are muted by this concern currently. The ability to satisfy regulatory requirements for the change in fuel economy for different market fuels (+-3%) presents a challenge with fuels like these in the market. Also, even though for some vehicles, our Owner's Manuals require the use of Premium fuel, compensation must be made in calibrations to ensure that when these vehicles are mis-fueled with Regular, or even sub-Regular Octane grades, the owners are still provided with an acceptable driving experience.

Volkswagen considers the pathway and blendstock of a higher octane fuel to be very important. There may be several potential ways to achieve a high octane fuel that may be more costly to the vehicle than others. Achieving an E10 high octane fuel may mean a different hardware set than an E20 or E30 high octane fuel. Elimination of sub-grades of market fuel (less than 87AKI) quickly is very important. If current 87 AKI and 85 AKI fuels remain in the market for backward compatibility (such as if an E30 were chosen as the HO fuel of the future), a robust method at the fuel dispensing station and incorporated into the fueling station equipment to prevent mis-fueling is necessary. However, an E10 high octane pathway might have far fewer compatibility problems and might bring extra fuel economy to the drivers of those current vehicles.